

1985

UA66/8/3 Annual Report

WKU Geography & Geology

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DEPARTMENT OF
GEOGRAPHY AND GEOLOGY



Annual Report

1984-1985



WESTERN KENTUCKY UNIVERSITY

Bowling Green, Kentucky 42101

DEPARTMENT OF
GEOGRAPHY AND GEOLOGY
ANNUAL REPORT

1984-85

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ACKNOWLEDGEMENTS

My thanks to the faculty of the Department of Geography and Geology for their continued excellence in teaching, research, and public service. Gratitude is also extended to Mrs. Betsy Lowery for her invaluable assistance to the department head. Finally my thanks to Ron Dilamarter for editorial help and to Lisa Frye for her secretarial skills in preparing this manuscript.

Wayne L. Hoffman

1 April 1986

Dear Reader,

This is the eighth of a continuing series of Department of Geography and Geology Annual Reports. The purpose of the series is to provide the administration with an assessment of our current status in instruction, research, and public service. Moreover, the report provides an exchange of information regarding alumni, students, faculty and the geography and geology programs.

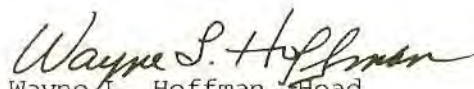
Several important personnel changes occurred in the past year. The most significant change was the resignation of President Donald Zacharias who left to accept the presidency at Mississippi State University. Dr. Paul Cook was appointed Interim President while a national search was conducted. Dr. Kern Alexander of the University of Florida was selected by the Board of Regents to head Western Kentucky University during this period of financial difficulty and opportunity within the Commonwealth. In addition, Dr. Charles Kupchella, formerly of Murray State University, was named Dean, Ogden College of Science, Technology and Health. Dr. Kupchella replaces Bill Lloyd who has returned to the Chemistry Department.

Two major reviews and studies were completed in the past twelve months. Departmental programs and the Department Head were reviewed by an internal committee and an external consultant. Dr. John Oliver, Indiana State University, was impressed with our efforts and wrote a very favorable report. I am pleased to announce our program and the department administration came through this process in fine fashion. In addition, a departmental strategic plan was formulated. It is a massive document which includes goals and objectives to the year 1990.

Faculty within the department published twenty-nine journal articles and reports during the past year. Reza Ahsan, Glen Conner, Nick Crawford, Ron Dilamarter, Ron Seeger, and Michael Trapasso had multiple publications. Twenty-one professional papers were presented at state, regional, and national meetings. Reza Ahsan, Nick Crawford, Ron Dilamarter and Michael Trapasso had multiple presentations. In addition, faculty had six external grants funded totalling over \$129,000. Special notice should be given to the contribution Nick Crawford made in all three of these areas. In recognition of his effort, Nick was the recipient of the University's Outstanding Research Award for 1984-85. Finally the productivity and academic excellence of our students should be noted. From 1983 to 1985 they published or presented 31 research papers.

We intend to continue our quest for excellence. Next year's annual report should reflect still greater faculty efforts in instruction, research, grants, and public service. As I complete my tenth year as department head I look forward to the coming year.

Sincerely,



Wayne L. Hoffman, Head
Department of Geography and Geology

FACULTY

- S. Reza Ahsan, Ph.D. (Florida), Professor. Cartography, Air Photo, Remote Sensing, South Asia, Eastern Africa, Caribbean.
- James M. Bingham, Ph.D. coursework (Indiana State), Assistant Professor. Economic, Location Theory, Planning.
- Glen Conner, M.S. (Western Kentucky University), Assistant Professor. Meteorology, State Climatologist.
- Nicholas C. Crawford, Ph.D. (Clark), Professor. Hydrology, Groundwater, Karst Studies.
- James L. Davis, Ph.D. (Northwestern), Professor. Urban, Transportation, North America.
- Ronald R. Dilanarter, Ph.D. (Iowa), Professor. Geomorphology, Cartography, Air Photo, Karst Studies.
- Noland E. Fields, Jr., Ph.D. (Louisiana State), Professor. Environmental Geology, Sedimentary Geology, Paleontology.
- Edmund E. Hegen, Ph.D. (Florida), Professor. Resources and Conservation, Rural Development, Latin America.
- Wayne L. Hoffman, Ph.D. (Florida), Head, Professor. Urban, Economic, Planning.
- Deborah W. Kuehn, Ph.D. (Pennsylvania State), Adjunct Professor. Coal Geology, Organic Geochemistry, Palynology.
- Kenneth W. Kuehn, Ph.D. (Pennsylvania State), Assistant Professor. Coal Geology, Coal Petrology, Geostatistics.
- Mark Lowry II, Ph.D. (Syracuse), Professor. Urban, Social, Planning.
- Jack D. McGregor, Ph.D. (Illinois), Professor. Mineralogy, Petrology, Petroleum Geology.
- Conrad T. Moore, Ph.D. (U.C.L.A.), Associate Professor. Resource Management, Biogeography, Environmental Perception.
- Albert J. Petersen, Jr., Ph.D. (Louisiana State), Professor. Cultural, Settlement Patterns, Historic Preservation.
- Claude E. Pickard, Ph.D. (Nebraska), Professor. Economic, Settlement Patterns, North America.
- C. Ronald Seeger, Ph.D. (Pittsburgh), Professor. Planetology, Lunar Geology, Structural Geology, Geophysics, Tectonics.
- L. Michael Trapasso, Ph.D. (Indiana State), Assistant Professor. Climatology, Geomorphology, Remote Sensing.

PERFORMANCE OBJECTIVES 1984-85

In reviewing the Department's performance objectives for 1984-85 one finds considerable progress has been achieved in selected areas. Faculty within the department significantly increased their number of publications, attendance at professional workshops, positions in professional organizations, and grants and fellowships. Over \$129,000 in external grants was received, an increase of \$61,000 when compared to 1983-84. The Geography and Geology Department ranked second in Ogden College in this category. Tables 1 and 2 document the increase in faculty noninstructional activity in the 1980-1985 period.

Our computer equipment base continued to expand with the purchase of an Apple IIe computer. In addition, a Video Image Processing System was purchased (\$5,000) to upgrade our remote sensing capability. Public service activity continued at an increased level. The Center for Cave and Karst Studies was particularly active in the serious pollution problems identified in the karst aquifer of Bowling Green and the surrounding area. The climate center, weather station, historic preservation surveys and other activities firmly identified this department as a pacesetter in providing professional expertise to the public.

On the negative side we were unsuccessful in obtaining a grant to fund remote radar equipment for the weather station or to upgrade our remote sensing laboratory. The NSF proposal to conduct an earth science workshop also was not funded. Both the weather equipment and earth science workshop proposals have been resubmitted and their fate at this time is unknown.

The development of a Strategic Plan (1985-1990) was one of the major assignments for all administrative units during the 1985-86 year. The goals and objectives of this plan, yearly objectives, and prioritized list of objectives that require additional resources follow.

TABLE 1

NONINSTRUCTIONAL ACTIVITIES 1980-1985

	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>	<u>1983-84</u>	<u>1984-85</u>
Publications	11	20	20	14*	29*
Papers presented	9	14	14	22	21
Attendance at professional workshops	8	13	9	10	17
Representation at professional meetings	22	34	29	43	29
Positions in professional organizations	12	12	10	8	12
Grants and Fellowships	10	7	11	11	15

*Abstracts not included

TABLE 2

EXTERNAL GRANT AND CONTRACT ACTIVITY 1980-1985

School Year	Number of Proposals	Number Funded	Amount Funded
1980-81	6	1	\$ 28,715
1981-82	1	1	\$ 9,358
1982-83	7	4	\$ 76,727
1983-84	7	4	\$ 68,703
1984-85	8	6	\$129,245

STRATEGIC PLAN FOR 1985-1990

1. Goals and Objectives

a. Organization

Goal: To maintain the present structure of the Department of Geography and Geology as a cooperating unit of two separate academic disciplines.

1. objective: to crosslist academic courses.
2. objective: to share academic expertise on curriculum matters.

b. Faculty Development and Recruiting

Goal: To expand participation in professional activities such as workshops, short courses, and attendance at meetings.

1. objective: to establish a visiting scholars seminar on a monthly basis.
2. objective: to establish a faculty-student seminar where faculty and student research may be presented.
3. objective: to increase the travel budget so that our faculty may attend at least one professional meeting a year.

Goal: To fill vacant geography and geology positions with qualified professionals from the respective disciplines.

1. objective: to restructure new positions toward faculty well trained in methodology and techniques.
2. objective: to employ new faculty at the assistant professor rank.

Goal: To increase the number of faculty by two.

1. objective: to employ a planner/geographer well versed in methodology and computer techniques.
2. objective: to employ a carbonate petrologist in the geology area.

c. Affirmative Action

Goal: To aggressively seek minorities to fill vacant and new positions.

Goal: To increase the number of minority students in all of our programs.

d. Advising

Goal: To improve department advising.

1. objective: to meet with each undergraduate major or minor at least once each semester.
2. objective: to review department advising materials.

e. Curriculum

Goal: To establish a Commonwealth Center for Academic Excellence.

1. objective: to explore the possibility of creating a groundwater resource center with several other disciplines in the College.
2. objective: to explore the possibility of the Kentucky Climate Center serving as a focal point of a Commonwealth Center of Excellence.

Goal: Review curriculum in light of professional, industrial and environmental trends.

1. objective: to review each course in the curriculum by syllabus content and enrollment patterns, to determine required frequency, prerequisite, and relationship to the entire program.
2. objective: to recommend additions and deletions to the undergraduate and graduate course offerings.
3. objective: to create a long-range course offering plan that maximizes student access to essential courses on a timely basis.
4. objective: to restructure the curriculum to provide more flexibility for majors.
5. objective: to study possibility of developing a

"Fossil Fuels" track in the geology major.

6. objective: to recommend the renaming of the M.P.S. Degree (City and Regional Planning Emphasis) to Master of Science Degree in City and Regional Planning.
7. objective: to determine administrative support for the Geology Master of Science proposal.
8. objective: to prepare documents and letters of support for Geology M.S. proposal.
9. objective: to seek funding for Geology M.S. proposal.
10. objective: to resubmit the Geology M.S. proposal to the University and appropriate committee.

Goal: To provide a program that expands the students' acquired skills in geographic techniques, quantitative skills and writing proficiency.

1. objective: to restructure the curriculum to provide orderly acquisition and evaluation of student skills in quantitative techniques and geographical analysis.
2. objective: to establish a team-taught, senior level seminar as a vehicle for the development of student skills in writing and presentation of geographic research.

Goal: To concentrate graduate study in seven areas: Cartography and Remote Sensing, Hydrology and Geomorphology, Teacher Education, City and Regional Planning, Resource Management, Climatology and Meteorology, and Rural Development and Planning.

f. Quality of Instruction

Goal: To increase the faculty's utilization of instructional media and computer-aided instruction.

1. objective: to acquire and implement computer test construction and course management software.
2. objective: to make computers and software more accessible to faculty.

Goal: To improve the quality of instruction on the undergraduate level.

1. objective: to conduct an alumni review of the program with first and fifth year graduates.
2. objective: to increase field work component in advanced courses.
3. objective: to seek increased funding in the student worker budget to provide additional laboratory assistants.
4. objective: to increase student involvement with computer exercises.

g. Recruiting

Goal: To increase the visibility of the geography/geology faculty in the public schools of our service area.

1. objective: to encourage faculty to actively participate in "faculty appreciation day" in regional public schools.
2. objective: to participate in the judging of science fair projects.
3. objective: to be actively involved in Ogden College Science Days.

Goal: To expand awareness of college and secondary school students of opportunities in geology and geography.

1. objective: to inform school administrators of the availability of geology and geography faculty for classroom presentations.
2. objective: to review current materials provided to students currently expressing an interest in the respective disciplines.
3. objective: to increase talks and presentations to student organizations.

Goal: To intensify recruiting efforts at the graduate student level.

1. objective: to actively seek recruitment and admission of graduate students from Third World Nations.
2. objective: to send instructors to visit nearby universities for graduate recruitment and professional development purposes.

h. Equipment, Facilities and Space

Goal: To reorganize existing facilities and space for better utilization.

1. objective: to initiate planning for completion of facilities for geochemistry lab.
2. objective: to establish an audiovisual facility and film library to be maintained within the department.
3. objective: to create a separate computer skills laboratory separate from the office of the Kentucky State Climatologist.

Goal: To maintain a "state-of-the-art" weather station for the meteorological technology program.

1. objective: to obtain a radar capability to replace the capability lost in 1985.
2. objective: to replace or refurbish all meteorological instruments which are not fully usable.
3. objective: to replace the then-to-be-phased-out NAFAX service with a suitable substitute.
4. objective: to obtain a satellite reception capability to obtain weather data.

i. Research

Goal: To increase by 50 percent the research productivity of the faculty during the next five years.

1. objective: to reduce the teaching load to nine hours and in exceptional cases six for those faculty actively involved in research or funded projects.
2. objective: to provide computer, cartographic and secretarial assistance to faculty engaged in publishable and/or funded research.
3. objective: to direct research towards regional needs and concerns.
4. objective: to produce a minimum of four undergraduate student publications or presentations a year.

j. Service

Goal: To further develop the department's high level of public service activity to the region and to the state.

1. objective: to provide a reduced teaching load for faculty offering extended service to regional or state agencies.
2. objective: to seek funding for the office of the Kentucky State Climatologist and the Center for Cave and Karst Studies.
3. objective: to establish a Cartographic Laboratory by 1990 to provide map production services to the academic community and community agencies.
4. objective: to increase our Summer Program at Mammoth Cave.
5. objective: to initiate one new service-oriented project a year.
6. objective: to provide severe weather information from radar derived information.
7. objective: to assist Disaster and Emergency Services in weather related planning.

k. Extramural Funding

Goal: To increase external funding to the department by 15 percent over the next three years.

1. objective: to reduce teaching loads for those faculty writing research grants.
2. objective: to provide secretarial assistance in writing grant proposals.

l. Other Aspects of Graduate Program

Goal: To increase graduate assistantship funding by 100 percent.

1. objective: to increase annual stipend for full-time assistantship to \$4,500.
2. objective: to increase the number of full-time assistantships to ten.

m. Continuing Education

Goal: To offer one continuing education workshop a year to the citizens of the region.

n. Extended Campus Instruction

Goal: To provide geography/geology professional instruction to those not able to attend the Bowling Green campus.

1. objective: to increase our number of off campus offerings, particularly at the upper division/graduate level, in the resource management area.

2. Yearly Objectives

a. 1985-86

objective: to increase the travel budget so that our faculty may attend at least one professional meeting a year.

objective: to explore the possibility of creating a groundwater resource center with several other disciplines in the College.

objective: to recommend the renaming of the M.P.S. Degree (City and Regional Planning Emphasis) to Master of Science Degree in City and Regional Planning.

objective: to determine administrative support for the geology M.S. proposal.

objective: to conduct an alumni review of the program with first and fifth year graduates.

objective: to encourage faculty to actively participate in "faculty appreciation day" in regional public schools.

objective: to participate in the judging of science fair projects.

objective: to review current materials provided to students currently expressing an interest in the respective disciplines.

objective: to obtain a radar capability to replace the capability lost in 1985.

objective: to replace the phased out NAFAX service with a suitable substitute.

objective: to direct research towards regional needs and concerns.

objective: to support funding for the office of the Kentucky State Climatologist and the Center for Cave and Karst Studies.

b. 1986-87

objective: to be actively involved in Ogden College Science Days.

objective: to crosslist academic courses.

objective: to share academic expertise on curriculum matters.

objective: to meet with each undergraduate major or minor at least once each semester.

objective: to review department advising materials.

objective: to explore the possibility of the Kentucky Climate Center serving as a focal point of a Commonwealth Center of Excellence.

objective: to review each course in the curriculum by syllabus content and enrollment patterns, to determine required frequency, prerequisite, and relationship to the entire program.

objective: to recommend additions and deletions to the undergraduate and graduate course offerings.

objective: to create a long-range course offering plan that maximizes student access to essential courses on a timely basis.

objective: to study the possibility of developing a "Fossil Fuels" track in the geology major.

objective: to restructure the curriculum to provide more flexibility for majors.

objective: to restructure the curriculum to provide orderly acquisition and evaluation of student skills in quantitative techniques and geographical analysis.

objective: to establish a team-taught, senior level seminar as a vehicle for the development of student skills in writing and presentation of geographic research.

objective: to prepare the proposal and letters of support for the geology M.S. program.

objective: to increase field work component in advanced courses.

objective: to seek increased funding in the student worker budget to provide additional laboratory assistants.

objective: to increase student involvement with computer

exercises.

objective: to inform school administrators of the availability of geology and geography faculty for classroom presentations.

objective: to increase talks and presentations to student organizations.

objective: to actively seek recruitment and admission of graduate students from Third World Nations.

objective: to reduce the teaching load to nine hours and in exceptional cases six for those faculty actively involved in research or funded projects.

objective: to provide a reduced teaching load for faculty offering extended service to regional or state agencies.

objective: to provide severe weather information from radar derived information.

objective: to reduce teaching loads for those faculty writing research grants.

objective: to increase annual stipend for full-time assistantship to \$4,500.

objective: to increase the number of full-time assistantships to ten.

c. 1987-88

objective: to establish a faculty-student seminar where faculty and student research may be presented.

objective: to employ a planner/geographer well versed in methodology and computer techniques.

objective: to acquire and implement computer test construction and course management software.

objective: to make computers and software more accessible to faculty.

objective: to send instructors to visit nearby universities for graduate recruitment and professional development purposes.

objective: to initiate planning for completion of facilities for geochemistry lab.

objective: to establish an audiovisual facility and film library to be maintained within the department.

objective: to provide computer, cartographic and secretarial

assistance to faculty engaged in publishable and/or funded research.

objective: to produce four undergraduate student publications or presentations a year.

objective: to increase our Summer Program at Mammoth Cave.

objective: to initiate one new service oriented project a year.

objective: to assist Disaster and Emergency Services in weather related planning.

objective: to provide secretarial assistance in writing grant proposals.

objective: to increase our number of off campus offerings, particularly at the upper division/graduate level, in the resource management area.

d. 1988-89

objective: to establish a visiting scholars seminar on a monthly basis.

objective: to employ a carbonate or geochemical petrologist.

objective: to create a computer skills laboratory separate from the office of the Kentucky State Climatologist.

objective: to replace or refurbish all meteorological instruments which are not fully usable.

e. 1989-90

objective: to obtain a satellite reception capability to obtain weather data.

objective: to establish a Cartographic Laboratory by 1990 to provide map production services to the academic community and community agencies.

3. Objectives Which Require Additional Resources (Prioritized)

1. To obtain radar capability in weather station (\$24,000)
2. To replace NAFAX service with a suitable substitute (\$6,000)
3. To obtain funding for the proposed Geology Master of Science Degree--assistantships, etc. (approximately \$25,000)
4. To increase the number of current full time assistantships

to ten (\$27,000 per year)

5. To increase field work component in advanced courses (approximately \$1,500 per year)
6. To employ a planner/geographer well versed in methodology and computer technology (approximately \$25,000 per 9 months)
7. To establish a visiting scholars seminar--travel, etc. (\$1,000 per year)
8. To increase the travel budget so that all faculty may attend at least one professional meeting a year (\$6,000 per year)
9. To add four additional laboratory assistants (approximately \$6,400 per 9 months)
10. To establish an audiovisual facility and film library to be maintained within the department (approximately \$12,000)
11. To employ a carbonate petrologist in the geology area (approximately \$25,000 per 9 months)
12. To complete existing facilities for geochemistry lab (approximately \$10,000)
13. To provide additional secretarial assistance to faculty involved in research and funded projects (\$8,000 per year)
14. To replace or refurbish all meteorological instruments which are not fully usable (\$4,000)
15. To obtain a satellite reception capability in the weather station (\$27,000)
16. To establish a Cartographic Laboratory to provide map production service (\$10,000 per year)

GRADUATE STUDENTS IN RESIDENCE

1985-86

Maimunah Abdullah, Emporia State University

Anthony Able, Georgia Southwestern University

Jeffrey K. Arruda, Western Kentucky University

Cynthia Atkins, University of Kentucky

Abdellah Benkhalti, Institute of Agriculture and Vegetation, Morocco

Brett Caldwell, Western Kentucky University

Thomas Feeney, SUNY, Oneonta

Christopher Groves, Western Kentucky University

Mashitah Haris, Indiana University

Hong Liu, Western Kentucky University

Liria Lopez, Western Kentucky University

Philip Reeder, Frostburg State College

James Webster, Western Kentucky University

John Stanley Williams, Western Kentucky University

MASTERS DEGREES AWARDED

1984-85

Master of Science (Geography)

Geary M. Schindel. "Enteric Contamination of an Urban Karstified Carbonate Aquifer: The Double Springs Drainage Basin, Bowling Green, Kentucky." Dr. Nicholas Crawford, Director.

Master of Arts in Education (Geography Major)

Clovis Perry

Master of Public Service (City and Regional Planning)

Timothy J. Asher
Larry V. Miller
James (Bill) Mitchell
Donald M. Simard

MASTERS THESES COMPLETED 1970-1985

- Foster, Steven C., "A Comparative Analysis of Kentucky State Parks." 1970, (Director: Davis)
- Adams, Neilam, D., "A Historical Description of the Areal Distribution of the Churches in Warren County, Kentucky." 1971, (Director: Petersen)
- Randiga, Henry O., "The Banana Regions of East Africa: The Regional Distribution and Cultural Significance of a Traditional Food Crop." 1971, (Director: Ahsan)
- Frymark, James M., "An Analysis of Land Values in Bowling Green, Kentucky." 1972, (Director: Hoffman)
- Singla, Sudesh K., "Geographical Analysis of the State-Administered Roads in Kentucky, 1920 to 1970." 1972, (Director: Ahsan)
- Schulman, Steven A., "Logging in the Upper Cumberland River Valley: A Folk Industry." 1973, (Director: Petersen)
- Dibble, Jeanne M., "The Feasibility of Annexation: A Cost-Revenue Approach for Bowling Green, Kentucky." 1974, (Director: Hoffman)
- Grace, Randall, "The Fresh-Water Mussel Industry of the Lower Tennessee River: Ecology and Future." (Director: Petersen)
- Harding, Robert F., "A Quantitative Analysis of the Spatial Distribution of Substandard Housing in Bowling Green, Kentucky." 1974, (Director: Hoffman)
- Szymanski, Kenneth N., "A Statistical Analysis of the Residential Distribution of Blacks in Nashville, Tennessee." 1974, (Director: Hoffman)
- Preece, David J., "Crimes and Illness: The Psychological and Criminal Defects Derived From the Architectural and Spatial Design in Public Housing Projects." 1975 (Director: Lowry)
- Adedibu, Afolabi A., "A Study of the Recreational Impact on Nolin Flood Control Reservoir in West Central Kentucky." 1975, (Director: Hoffman)
- Hall, Luke D., "A Statistical and Cartographic Analysis of the Size-Distribution of Retail Grocery Stores in Bowling Green, Kentucky." 1975 (Director: Hoffman)
- Momcilovich, Peter R.E., "The Cartographic Design of Highway Symbolization on State Road Maps: A Discussion and Critique." 1975, (Director: Ahsan)
- Busse, Barbara B., "Wisconsin Railroad Planning: A State's Perspective of Abandonments." 1975, (Director: Hoffman)

- Ray, Joseph A., "Geomorphology and Land Use of a Tropical Wet-Dry Environment, Santander, Colombia." 1975, (Director: Hegen)
- Conner, Doral G., "The Lower Reaches of Long Creek, Kentucky: A Karst Anomaly in Allen County." 1976, (Director: Dilamarter)
- Fowler, William M., "A Comparison of Selected Habitats of Fallow Deer (Dama Dama) in the United States." 1976, (Director: Foster)
- Wilder, Bernice G., "A Correlation Study of Atmospheric Conditions and Incidences of Respiratory Deaths." 1976, (Director: Foster)
- Bodo, Daniel, "The Páramo de Berlin, Colombia: A Study of Water Resources In a Rural Andean Community." 1977, (Director: Hegen)
- Ewell, Jeffrey R., "School District Performance in Erie County and Buffalo, New York: The Socio-Spatial Dimensions of Educational Quality." 1980, (Director: Lowry)
- Brooks-Giles, Alice F., "A Case Study: Neighborhood II Conservation Plan." 1981 (Director: Hoffman)
- Cubbage, James C., "Hydrology of the Sinking Creek System, Logan and Simpson Counties, Kentucky." 1982, (Director: Dilamarter)
- Tucker, Nancy L., "Nonpoint Agricultural Pollution in a Karst Aquifer: Lost River Groundwater Drainage Basin, Warren County, Kentucky." 1982, (Director: Crawford)
- Rice, Donald E., "Impact of Urban Stormwater Runoff on the Water Quality of the Subsurface Lost River, Bowling Green, Kentucky." 1983, (Director: Crawford)
- Powell, Gregory W., "A Simplified Surface Analysis for the Detection of Outflow Boundaries from Mesoscale Convective Complexes." 1984, (Director: Trapasso)
- Schindel, Geary, "Enteric Contamination of an Urban Karstified Carbonate Aquifer: the Double Springs Drainage Basin, Bowling Green, Kentucky." 1984, (Director: Crawford)
- Veni, George, "Effects of Urbanization on the Quantity and Quality of Storm Water Runoff Recharging Through Caves into the Edwards Aquifer, Bexar County, Texas." 1985, (Director: Crawford)
- Simpson, Robert M., "The Relationships Between Snow Cover and Cyclones in the Middle West and Eastern United States." 1985, (Director: Trapasso)

LISTING OF GRADUATE ALUMNI AND EMPLOYMENT STATUS
MASTERS DEGREE IN GEOGRAPHY 1968-1985

A review of our geography graduate student alumni finds, with only a few exceptions, all actively engaged directly or indirectly in the profession. Ten of the students have begun work on their doctorate. Nine are teaching on the college or high school level. The remainder are employed by various government agencies, private industry, or are self employed. The geography area takes pride in its placement and success of its graduate alumni.

Neil Adams	-Teacher - Clarksville, Tennessee
Afolabi Adedibu	-Ph.D. - Professor, University of Illoran - Nigeria
Ameer Al-Ostad	-Ph.D. student - Kent State University
James Ashley	-Principal of a high school- Florida
Kenneth Beeler	-Engineer - Tennessee
Daniel Bodo	-Teacher - Arizona
David Bosse	-Map Curator - Newberry Library Chicago
Donald Briddon	-Defense Mapping Agency Louisville, Kentucky
Barbara Busse	-Department of Local Government Wisconsin
D. Glen Conner	-State Climatologist - Commonwealth of Kentucky; Assistant Prof. W.K.U.
Stavros Constantinou	-Ph.D. - Ohio State University Marion
David M. Crump	-Teacher - Daviess County, Kentucky
James Cabbage	-Oil industry - Kentucky/Indiana
Steven Dale	-Bluegrass Area Development District

Jeanne Dibble	-Lost contact
Susan Edwards	-Anderson Engineering Company Kentucky
Jeffrey Ewell	-Private business - New York
Steven Foster	-Major in the U.S. Army
William Fowler	-Corps of Engineers
James Frymark	-Department of Local Government Wisconsin
Randall Grace	-Historic Preservation - Tennessee
Luke Hall	-Hydrologist - California
Robert Harding	-State government - New Jersey
Allan Ray Hollis	-Went on for doctorate in education position unknown
George Kadis	-Geography teacher - Cyprus
Michael L'Heureux	-Ph.D. student - Boston University
Alan Little	-Teacher - Farmer - South Carolina
Cliff Allan Lockyer	-Doctor of Arts student University of Northern Colorado
Frederick Mader	-Ph.D. - University of Georgia
Peter Momcilovich	-U.S. Army
Neophytos Neroupos	-Geography teacher - Cyprus
Carl Nunn, Jr.	-Geography teacher - Kentucky
Wayne Perkins	-Deceased
Richard Petersen	-State government - South Dakota
Henry Randiga	-Principal - High School - Kenya
Joseph Ray	-Research assistant to the Park Geologist at Mammoth Cave National Park
Donald Rice	-Hydrologist - Utility company
Paul Rono	-Ph.D. student - University of Cincinnati

Steven Schulman	-Ph.D. student - L.S.U.; present position unknown
Geary A. Schindel	-Department for Natural Resources, Kentucky
Robert Simpson	-Ph.D. student - University of Virginia
Sudesh K. Singla	-Defense Mapping Agency Louisville, Kentucky
Gary Talley	-U.S. Department of Interior
Othon Theodoulou	-Head - Chamber of Commerce Cyprus
Malcolm Thomas	-Farmer - Kentucky
Jimmie L. Thompson	-High school teacher - Kentucky
Sheree Tipton	-Remote Sensor - Chicago firm
Nancy Tucker	-Ph.D. student - Louisiana State University
Bernice Wilder	-Planner - State government agency Indiana

LISTING OF GRADUATE ALUMNI AND EMPLOYMENT STATUS
CITY AND REGIONAL PLANNING OPTION
MASTER OF PUBLIC SERVICE 1974-1985

A review of City and Regional Planning alumni finds that most are actively involved in the profession. The department takes pride in the placement and success of its graduate alumni.

Adedibu, Afolabi A., M.P.S. in Planning, 1975. Ph.D., Nigeria

Aldrich, John Lloyd, M.P.S. in Planning, 1976. Planner, Pennsylvania

Asher, Timothy Joseph, M.P.S. in Planning, 1984. Planner,
Radcliff, Kentucky

Banifatami, Kashi, M.P.S. in Planning, 1982. Lost contact

Barnhart, Diana L., M.P.S. in Planning, 1976. Planner, Michigan

Bishop, Joseph H., M.P.S. in Planning, 1975. Planner, Madisonville,
Kentucky

Becker, Ronald, M.P.S. in Planning, 1976. Planner, Barren River
Area Development District

Boysen, Irvin G., M.P.S. in Planning, 1979. U. S. Army

Brooks-Giles, Alice Faye, M.P.S. in Planning, 1981. Planner,
Massachusetts

Chansler, James M., M.P.S. in Planning, 1984. Bowling Green
Municipal Utilities

Chauypong, Preecha, M.P.S. in Planning, 1978. Planner, Thailand

Cockrill, Dwight David, M.P.S. in Planning, 1978. School teacher,
Kentucky

Colcord, Edward C., M.P.S. in Planning, 1977. Planner, Barren River
Area Development District

Cooper, Billy E., M.P.S. in Planning, 1983. Planner, Barren River
Area Development District

Darby, Dorothy, M.P.S. in Planning, 1974. Planner, Barren River Area
Development District

Durham, Nicky Lee, M.P.S. in Planning, 1975. Kentucky Extension
Service, Elizabethtown, Kentucky

Essien, Akpan Moses, M.P.S. in Planning, 1978. Lost contact

Ferguson, Leon B., M.P.S. in Planning, 1976. U.S. Department of Agriculture

Geha Zafer Hanna, M.P.S. in Planning, 1977. Lost contact

Ghasemi, Moosavi S., M.P.S. in Planning, 1980. Government official, Iran

Ghodratollah, Karimian, M.P.S. in Planning, 1981. Engineer, Northern Kentucky

Goldassteh, Davood, M.P.S. in Planning, 1981. Lost contact

Halfacre, William, M.P.S. in Planning, 1974. Engineer, I-65 Project

Harrison, Martha, M.P.S. in Planning, 1976. Lawyer's Aide

Hopper, Donna B., M.P.S. in Planning, 1984. Planner, Lake Cumberland Area Development District

Hour, Yih-Yuan, M.P.S. in Planning, 1981. Consulting company, Washington area

Jadalizadeh, Mohammad Reza, M.P.S. in Planning, 1981. Lost contact

Larimore, Gary W., M.P.S. in Planning, 1984. Executive Director, Kentucky Rural Water Agency

Liu, Guang Chyi, M.P.S. in Planning, 1978. Ph.D. candidate, Pennsylvania University

Mahramfar, Ali M., M.P.S. in Planning, 1983. Lost contact

Martin, Thomas A., M.P.S. in Planning, 1979. Lost contact

Matheny, Leonard Ray, M.P.S. in Planning, 1975. Planner, Owensboro

Miller, Larry Vernon, M.P.S. in Planning, 1985. Bowling Green Municipal Utilities

Mitchell, James W., M.P.S. in Planning, 1985. Planner, Northern Kentucky Area Development District

Momodu, Napoleon S., M.P.S. in Planning, 1982. Planner, Africa

Nazem, Manoucher, M.P.S. in Planning, 1983. Seeking local position

Neroupos, Neophytos, M.P.S. in Planning, 1976. Teacher, Cyprus

Ouderkirk, Paul Edward, M.P.S. in Planning, 1978. Planner, Illinois

Preece, David John, M.P.S. in Planning, 1974. Planner,
Washington, D.C.

Ross, Charles, M.P.S. in Planning, August, 1974. Planner,
Purchase Area Development District

Scott, William L., M.P.S. in Planning, 1980. Planner, Kentucky

Simard, Donald Michael, M.P.S. in Planning, 1984. Planner, Maine

Speakman, Nancy G., M.P.S. in Planning, 1979. Planner, Anderson
Engineering

Stephens, Barry S., M.P.S. in Planning, 1982. Teacher, Kentucky

Szymanski, Kenneth, M.P.S. in Planning, 1974. Political
consultant, Texas

Tehrani, Davood S., M.P.S. in Planning, 1977. Planner & Consultant, Arizona

Toney, Ray Howard, M.P.S. in Planning, 1975. U.S. Department of Agriculture

Trinkler, Kenneth T., M.P.S. in Planning, 1981. U. S. Army

Tucker, Douglas W., M.P.S. in Planning, 1975. Deceased

Whitley, Wade H., M.P.S. in Planning, 1980. U. S. Army

Wright, Forrest Lee, M.P.S. in Planning, 1978. Planner,
Barren River Area Development District

Younger, Larry J., M.P.S. in Planning, 1978. Planner, Owensboro

DEPARTMENT GRADUATES
1984-85

Geography Majors

Timothy Baird
Patricia Black
Michael Burress
Elaine Cohron
Clifford Hardin
William Rex Hurt
Christopher Jircitano
Bryan Kinkel
Gary McNally
Christopher Palazzi
Michael Poynter
Joseph Rather
Gerald Selig
James Shaw
Gina Slaughter
Betty Jane Stradtner
Jose Villegas
Wade Whitfield
Greg Williams

Geography Minors

Laurie Acree
Jeffrey Arruda
William Ashby
Robert Bittel
Randall Bowman
Lisa Eversoll
Alfredo Frauenfelder
Eldridge Joyner
Terry Kerr
Melvin Taylor
Sherry Thurman
John Watson
Richard Withrow

Earth Science Minor

Bryan Kinkel

Cartographic & Mapping
Tech.-Associate Degree

Elaine Cohron
Beth Myers
Michael Poynter
Betty Jane Stradtner

Geology Majors

Jeffrey Arruda
Bobby Barker
Robert Bittel
Robert Bivens
Patricia Black
David Burton
Henry English
Mark Ford
Alfredo Frauenfelder
William Hill
John Hollins
Dallas Meloon
Sean Pickard
Harlan Stewart
Sherry Thurman
John Watson
James Webster
Richard Withrow

Geology Minors

Clifford Hardin
Joseph Rather
Gerald Selig
Betty Jane Stradtner
Theophilus Terry
Wade Whitfield

City & Regional
Planning Minor

Christopher Palazzi
James Shaw
Greg Williams

Meteorological
Tech.-Associate
Degree

William Ashby
Randall Bowman
John Hollins
Bryan Kinkel
Susan Watts

OUTSTANDING SENIOR AWARD

GEOGRAPHY

Judith Elaine Cohron

GEOLOGY

Sean D. Pickard

STUDENT AWARD WINNERS

Fifteenth Annual Student Research Conference March 30, 1985
Western Kentucky University
of
The Society of the Sigma Xi

Graduate Division

- | | |
|-----------|--|
| 1st Place | John F. Hoffelt
"The Karst Hydrogeology of Cane Creek, Tennessee"
Directed by: Nicholas C. Crawford |
| 3rd Place | George Veni
"Hydrogeology of a Thermal Karst Spring: Grutas De
Tolantongo, Hidalgo, Mexico"
Directed by: Nicholas C. Crawford |

STUDENT PUBLICATIONS AND PRESENTATIONS 1983-85

Between 1983 and 1985 graduate and undergraduate students in the Department published or presented 31 professional papers. The faculty takes considerable pride in our students' participation in their chosen academic professions. We believe that the research activities of our students are matched by few, if any, other academic departments at Western Kentucky University.

Presentations:

Brown, Kevin, November 1984, Kentucky Academy of Science, Annual Conference, Frankfort, KY.

Groves, Christopher G., March 1984, Sigma Xi, 14th Annual Student Research Conference, Western Kentucky University.

Groves, Christopher G., November 1984, Kentucky Academy of Science, Annual Conference, Frankfort, KY.

Groves, Christopher, G., March 1985, Sigma Xi, 15th Annual Student Research Conference, Western Kentucky University.

Groves, Christopher G., June 1985, National Speleological Society, National Meeting, Frankfort, KY.

Hoffelt, John, March 1985, Sigma Xi, 15th Annual Student Research Conference, Western Kentucky University.

Hoffelt, John, June 1985, National Speleological Society, National Meeting, Frankfort, KY.

Kinkel, Bryan, November 1984, Kentucky Academy of Science, Annual Conference, Frankfort, KY.

Powell, Gregory, April 1984, Association of American Geographers, Annual Meeting, Washington, D.C.

Simpson, Mark and Clifford Hardin, November 1983, Kentucky Academy of Science, Annual Conference, Louisville, KY.

Veni, George, April 1984, Association of American Geographers, Annual Meeting, Washington, D.C.

Veni, George, March 1985, Sigma Xi, 15th Annual Student Research Conference, Western Kentucky University.

Veni, George, June 1985, National Speleological Society, National Meeting, Frankfort, KY.

Webster, James, June 1985, National Speleological Society, National Meeting, Frankfort, KY.

Publications:

- Brown, Kevin, 1984, Plant Hardiness Zones in Kentucky, Geography Section Proceedings, Kentucky Academy of Science, pp. 73-86.
- Case, Laura, 1983, Climatic Preferences of University Students, Student Honors Research Bulletin, Western Kentucky University, pp. 78-82.
- Coskren, Elise, 1984, Description of Anastomoses Like Features in Great Onyx Cave, Central Kentucky Cave Survey, Bulletin No. 1, pp. 104-114.
- Frank, Edward, 1984, The Exploration of the Jackson Hole Cave, Central Kentucky Cave Survey, Bulletin No. 1, pp. 22-25.
- Frank, Edward, 1984, Archaeology at Lost River, Central Kentucky Cave Survey, Bulletin No. 1, pp. 25-27.
- Frank, Edward, 1984, Biology of Lost River Cave, Central Kentucky Cave Survey, Bulletin No. 1, pp. 45-57.
- Frank, Edward, 1984, Identification of Cave Fish, Central Kentucky Cave Survey, Bulletin No. 1, pp. 81-83.
- Frank, Edward, 1984, Pool Surface Speleothems, Central Kentucky Cave Survey, Bulletin No. 1, pp. 115-117.
- Frank, Edward, 1984, Origin of Cave Cones, Central Kentucky Cave Survey, Bulletin No. 1, pp. 118-119.
- Groves, Christopher, 1984, A measure of the Subjective Component of Lineament Analysis of Topographic Maps, Geography Section Proceedings, Kentucky Academy of Science, pp. 15-28.
- Johnson, Jerry L., 1984, A University Student Center and Central Place, Geography Section Proceedings, Kentucky Academy of Science, pp. 119-138.
- Kinkel, Bryan, 1984, A Closer Look at a Record Breaking Atmospheric Low Pressure System, Geography Section Proceedings, Kentucky Academy of Science, pp. 103-116.
- Powell, Gregory, 1984, Aggressiveness of Subsurface Streams to Calcium Carbonate, Central Kentucky Cave Survey, Bulletin No. 1, pp. 85-95.
- Rasor, James, 1984, Relationships Between Cloud Cover and Precipitation, Student Honors Research Bulletin, Western Kentucky University, pp. 89-92.
- Schafstall, Tim, 1984, The Exploration of the Lost River Cave System, Central Kentucky Cave Survey, Bulletin No. 1, pp. 17-22.

Schindel, Geary, 1984, Pollution of the Lost River Cave System,
Central Kentucky Cave Survey, Bulletin No. 1, pp. 83-85.

Schindel, Geary, Sue Schindel and Mary Tinker (Eds.), 1984, Central
Kentucky Cave Survey, Bulletin No. 1, Center for Cave and Karst
Studies, Western Kentucky University, 217 p.

Trapasso, L. Michael and Bryan Kinkel, 1984, Annual Solar
Eclipse is Reflected in Local Weather Conditions,
Weatherwise, v.37, n.5, pp. 253-256.

UNDERGRADUATE ENROLLMENT DATA

Program Enrollment

Program enrollment in the Department of Geography and Geology declined to 262 during the past academic year (See Table 3). This is a fifteen percent decrease over the past year. A general deterioration in University enrollment and a relative large number of program graduates were contributing factors to this decline. We are optimistic that student increases in this vital area will occur in the next two years.

TABLE 3

HISTORICAL PERSPECTIVE

	<u>Fall</u> <u>'82</u>	<u>Spr</u> <u>'83</u>	<u>Fall</u> <u>'83</u>	<u>Spr</u> <u>'84</u>	<u>Fall</u> <u>'84</u>	<u>Spr</u> <u>'85</u>
Earth Science-- Major	1	3	3	0	2	2
Geography -- Major	87	99	90	91	70	75
Geology -- Major	94	114	87	79	58	54
Earth Science -- Minor	7	4	0	2	2	3
Geography -- Minor	51	55	46	49	49	50
Geology--Minor	25	23	25	20	17	16
City and Regional Planning -- Minor	-	-	4	15	14	17
Cartographic & Mapping Technology--Associate Degree	6	9	11	14	16	17
Meteorological Tech- nology -- Associate Degree	<u>38</u>	<u>40</u>	<u>34</u>	<u>37</u>	<u>33</u>	<u>28</u>
TOTAL	307	347	300	307	261	262

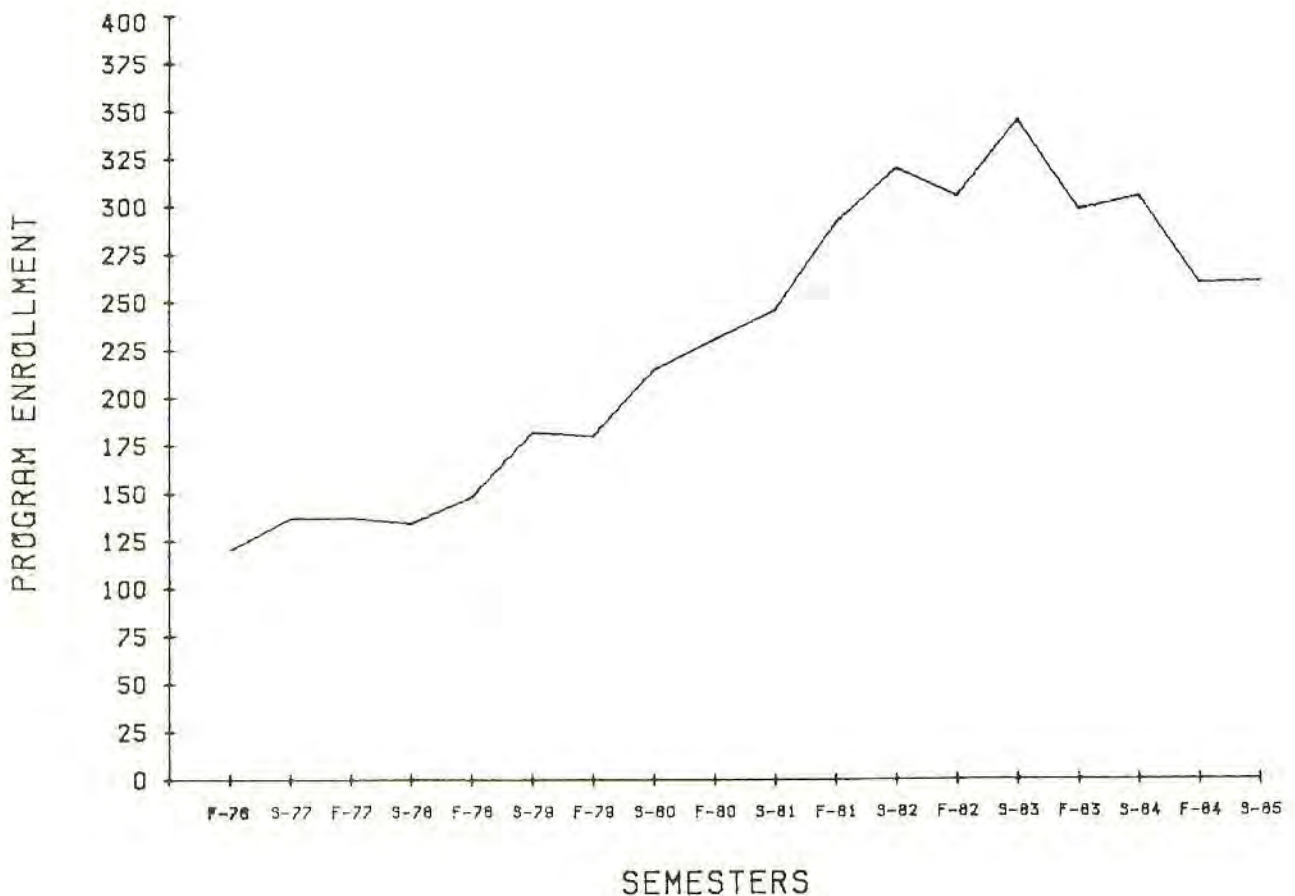
Figure 1, on the following page, presents a historical perspective of department enrollment for the past nine years (1976-1985). A 200 percent increase in program enrollment has been experienced since 1976.

Interuniversity Comparison

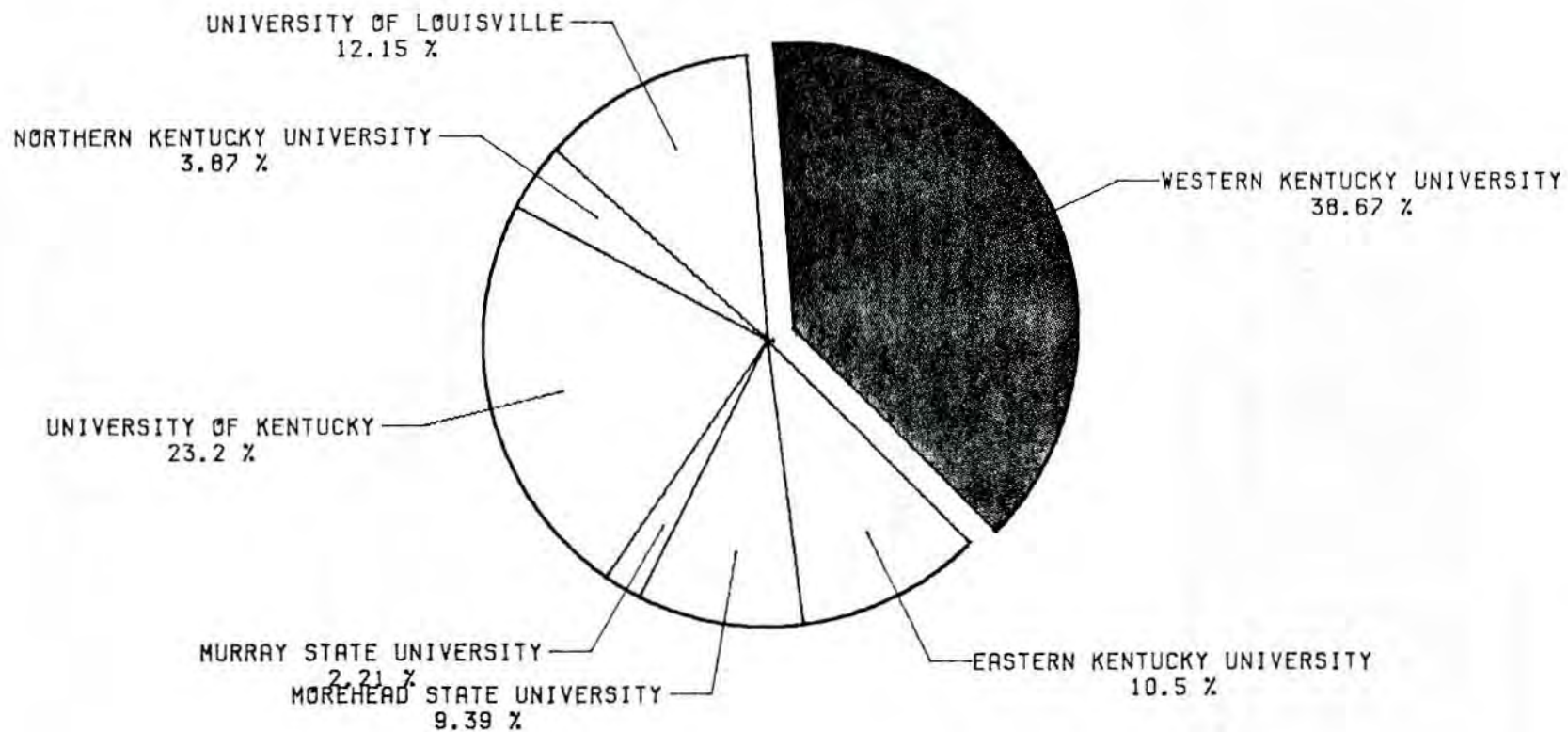
Despite the moderate enrollment decrease noted in Table 3, the health and vitality of the Geography and Geology programs can be determined by comparing our efforts with those of the other public universities in Kentucky. According to 1984 Council on Higher Education data more than 38% of the geography majors and over 35% of the geography bachelor degrees conferred in the state originated in this department (Figures 2 and 3). The geology statistics, while not as dramatic, indicate that over 16% of the discipline's majors and more than 18% of the geology degrees came from this department (Figures 4 and 5). We ranked behind the University of Kentucky in number of geology degrees granted but ahead of Eastern Kentucky, University of Louisville, Morehead State and Northern Kentucky.

Figure 1

GEOGRAPHY AND GEOLOGY UNDERGRADUATE PROGRAM ENROLLMENT 1976-1985



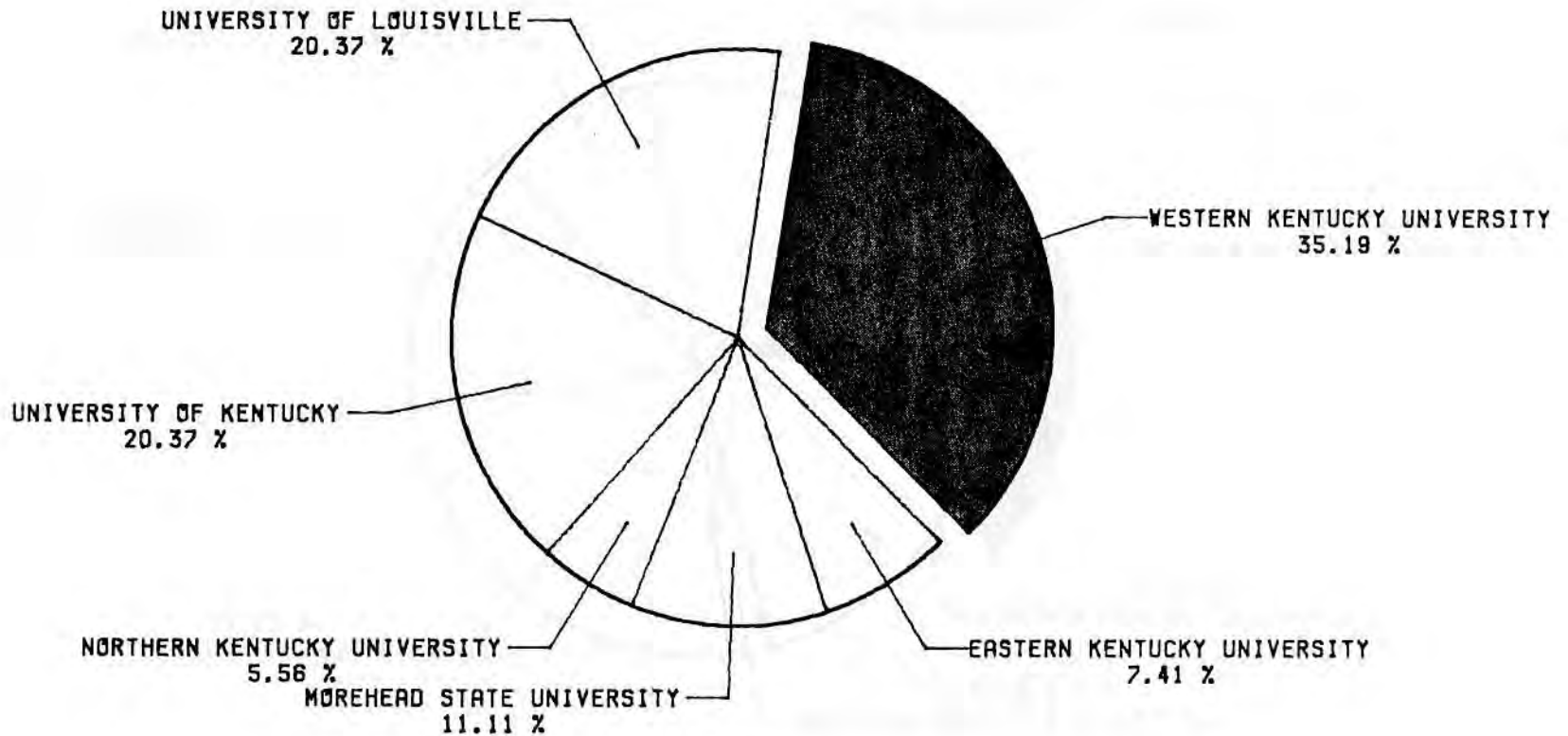
GEOGRAPHY MAJORS



FALL 1984

FIGURE 2

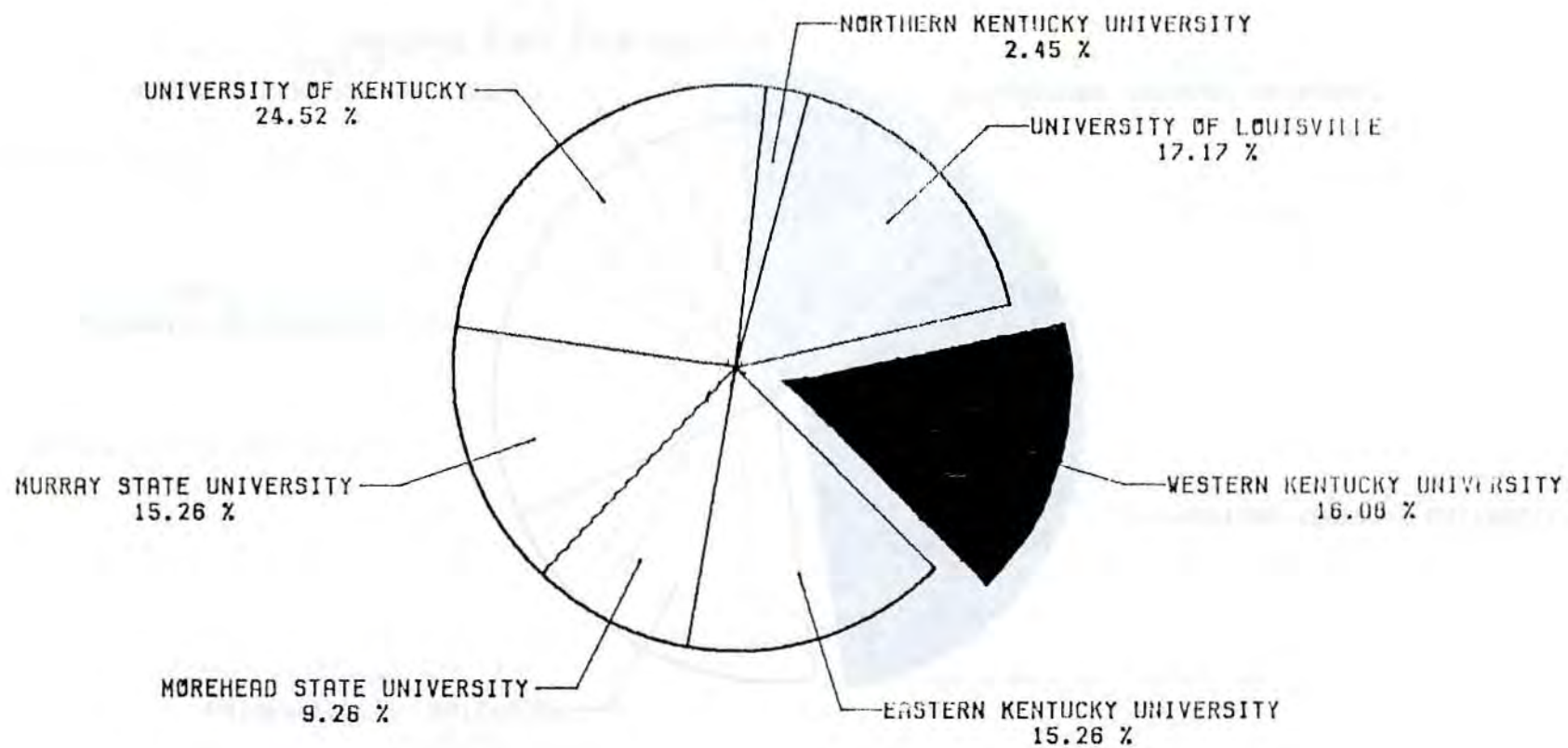
GEOGRAPHY BACHELOR'S DEGREES CONFERRED



1984

FIGURE 3

GEOLOGY MAJORS



FALL 1984

FIGURE 4

GEOLOGY BACHELOR'S DEGREES CONFERRED

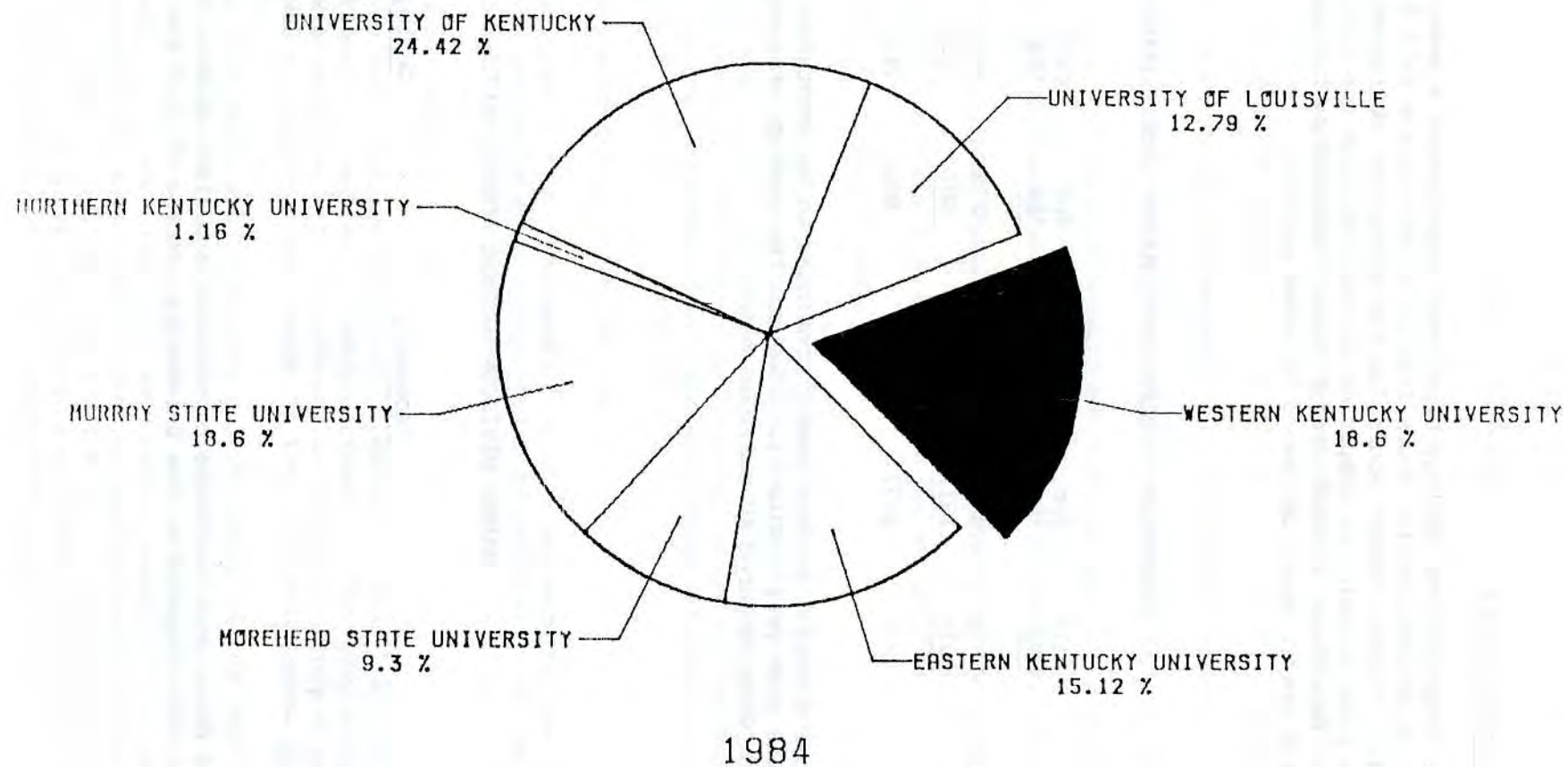


FIGURE 5

Student Credit Hours

The Geography and Geology Department experienced a seven percent decrease in student credit hours from Fall 1983 to the Fall 1984 semester (Table 4). Student credit hours for the University decreased by six percent for this time period. In comparing Spring 1984 with the Spring 1985 semester, department student credit hours increased by two percent while University credit hours decreased by seven percent.

TABLE 4
HISTORICAL PERSPECTIVE STUDENT CREDIT HOURS

	<u>Fall</u> <u>'82</u>	<u>Spr</u> <u>'83</u>	<u>Fall</u> <u>'83</u>	<u>Spr</u> <u>'84</u>	<u>Fall</u> <u>'84</u>	<u>Spr</u> <u>'85</u>
Geography	3846	3685	3818	3774	3699	3798
Geology	<u>1075</u>	<u>1212</u>	<u>946</u>	<u>887</u>	<u>715</u>	<u>968</u>
TOTAL	4921	4897	4764	4661	4414	4766

Upper division student credit continued to be maintained at a high level during the past year (Table 5). However, the Geology area experienced some reduction when compared to previous years.

TABLE 5
UPPER DIVISION STUDENT CREDIT HOURS

	<u>Geography</u>	<u>Geology</u>
Fall - 1982	1049	419
Fall - 1983	874	419
Fall - 1984	876	306

The department continues to maintain a healthy student faculty ratio (FTE) of 18.8 compared to the University average of 16.7 for the Fall 1984 semester.

PROGRAM DEVELOPMENT

Program Review

All programs in the department were subjected to the University's five year review. An internal committee consisting of three department members and one college faculty member reviewed all aspects of the various programs with excellent results. The internal committee was assisted in their study by Dr. John Oliver, an external consultant. Dr. Oliver leads a similar Geography and Geology Department at Indiana State University. Dr. Oliver's analytical report was very complimentary of the department programs and its faculty. Selected excerpts from Dr. Oliver's report follow:

Undergraduate Program in Geography

As indicated by the high enrollments, it is evident that this component of the Departmental Program is successful. Much of its success is related to dedicated teachers, innovative structure and planning. The program is certainly aided by the development of the track system. There appears little intrinsically wrong with the 4-year B.S. program.

The Undergraduate Program in Geology

Even prior to the recent addition of a new member, the three geologists in the Department provided a surprisingly wide variety of courses. They are to be commended for this.

Teaching and Service

These two areas are dealt with together in that they both represent major strengths of the Department. Interviews with students provided me with the impression that, for the most part, high quality classroom instruction is the rule rather than the exception.

The University should be particularly proud of the service activities of the Department of Geography and Geology. The stress of the faculty on regional problems is most appropriate and undoubtedly earns the University much public appreciation. While the activities are many, special mention must be made of the climatology/meteorology services and the hydrologic/karst information system. On a state wide basis, the State Climatologist's Office is a distinct asset and a major service activity.

Summary

The Department of Geography and Geology is a successful unit of Western Kentucky University. This factor is often overlooked in a critical survey so that it must be recognized that the recommendations made are designed to enhance what is an already viable series of programs.

This report contains the following recommendations:

- *Additional support is required in the Departmental secretarial staff.
- *Alternate job opportunities should be explored for the Associate Degree in Meteorology.
- *Cartography should be developed with appropriate emphasis on computer cartography.
- *Requirements of the undergraduate Geology degree need be examined in relation to Graduate School requirements.
- *The decision to apply for an M.A. degree in Geology requires very careful consideration with appreciation of negative as well as positive results.
- *The graduate program in Geography should be structured around its areas of strength with specialization as the key factor.
- *Assistance should be given to enhance the field work capability of the Department.
- *The research/grant capability of the Department may not develop significantly without implementation of appropriate administrative actions.
- *Definitive equipment needs have been identified.

Program Modifications

The Earth Science minor was amended to include Astronomy 214 (General Astronomy) in the core. Elective courses are now Geology 308, 325, 405, 411, 420 and Geography 328. A five hour waiver of the upper level requirement was also approved for this program.

Course Development

Two new geology courses were initiated during the academic year. Geology 480(G), Coal Geology, and Geology 482(G), Coal Petrology and Technology, were created to provide our students and students of related areas basic and technical knowledge of Kentucky's most important natural resource.

Mammoth Cave Summer Program

The Summer University at Mammoth Cave continues to be a success. Some sixty students enrolled in the five courses and workshops. The usual array of world experts were assembled to teach in the program. The 1985 courses and instructors were:

Karst Geology	- Dr. Arthur Palmer
Speleology	- Mr. Roger Brucker
Cave Archaeology	- Dr. Patty Jo Watson
Historical Geography of Mammoth Cave	- Dr. Stanley Sides
Karst Geomorphology	- Dr. Richard Powell

DISTINGUISHED CONTRIBUTION TO THE UNIVERSITY IN
RESEARCH/CREATIVE ACTIVITY

Dr. Nicholas Crawford

Dr. Nicholas Crawford, Professor of Geography and Geology, brought honor to the department when he was named the 1984-85 recipient of the University's Outstanding Research Award. The recipient of the award is selected for significant contributions in the field of (1) basic research, (2) creative production, or (3) scholarly investigation. The recipient of the award should:

1. Achieve recognition among colleagues in the discipline for productive research or creative work;
2. Make a concerted effort toward the advancement of his or her scholarly discipline;
3. Typify the highest ideals of scholarship;
4. Earnestly seek intellectual and professional growth, both as a member of a specialized discipline and as a participant in the academic affairs of the university;
5. Demonstrate an interest in fostering the intellectual growth of students;
6. Stimulate and promote student scholarship;
7. Be active in professional associations and learned societies and disseminate current knowledge to students;
8. Exemplify the qualities of unselfishness, integrity, and humane outlook;
9. Contribute to the institutional welfare of the university.

The faculty of the Department of Geography and Geology are privileged to have Nick Crawford as a professional colleague.

In addition to the University outstanding research/creative activity award, Nick Crawford also received praise from the Faculty Senate. In October, 1984, the Senate passed the following resolution:

The Western Kentucky University Faculty Senate recognizes Dr. Nick Crawford of the Department of Geography and Geology for exemplary public service. Without his persistent and selfless efforts, a potentially toxic and explosive situation in the Forest Park neighborhood likely would have been ignored by the appropriate government agencies, with possibly tragic consequences. His actions represent the highest standards of professional responsibility and concern for the public welfare.

VISITORS TO THE DEPARTMENT

Dr. John Oliver, Department of Geography and Geology, Indiana
State University, Terre Haute, Indiana

Mrs. Sandra Montgomery, Defense Mapping Agency, Louisville,
Kentucky

The remainder of the annual report documents the
involvement of the faculty in various professional
activities outside the classroom.

PUBLICATIONS

- Ahsan, Reza. "Sugar Cane and Indentured Labor in the West Indies," Latin America: Case Studies, (eds.) Boehm and Visser, Dubuque, Iowa: Kendall/Hunt, pp. 25-29, 1984.
- Ahsan, Reza. "The Background of the Indian Settlement in Trinidad, W.I.," Western Kentucky University Faculty Research Bulletin, pp. 107-114, 1983-84.
- Conner, Glen. Climatology of Kentucky Series, Kentucky Climate Center, 1984, 4 p. each.
- Climate of Manchester
Climate of Maysville
Climate of Middlesboro
Climate of Owensboro
Climate of Pikeville
Climate of Mount Sterling
- Conner, Glen. "Valley Junction Angles of Long Creek Drainage Area," Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 146-159, 1984.
- Crawford, Nicholas (with C.G. Groves). Storm Water Drainage Wells in Kentucky: Horse Cave and Cave City. U.S. Environmental Protection Agency, Underground Water Source Protection Program Grant Report, 52 p., 1984.
- Crawford, Nicholas (with C.G. Groves). Storm Water Drainage Wells in Kentucky: Horse Cave and Cave City. U.S. Environmental Protection Agency, Underground Water Source Protection Program Grant Report, 198 p., 1984.
- Crawford, Nicholas (with C.G. Groves). Storm Water Drainage Wells in Kentucky: Somerset. U.S. Environmental Protection Agency, Underground Water Source Protection Program Grant Report, 102 p., 1984.
- Crawford, Nicholas (with others). Storm Water Drainage Wells in Kentucky: Bowling Green, Volumes 1-7. U.S. Environmental Protection Agency, Underground Water Source Protection Program Grant Report, 1422 p., 1984.
- Crawford, Nicholas (with C.G. Groves). Storm Water Drainage Wells in Tennessee. U.S. Environmental Protection Agency Underground Water Source Protection Program Grant Report, 50 p., 1984.
- Crawford, Nicholas (with C.G. Groves). Storm Water Drainage Wells in Kentucky: Elizabethtown, Franklin, Glasgow, Hodgenville, Louisville, Munfordville. U.S. Environmental Protection Agency Underground Water Source Protection Program Grant Report, 63 p., 1984.

- Crawford, Nicholas. Sinkhole flooding associated with urban development upon karst terrain: Bowling Green, Kentucky, Sinkholes: Their Geology, Engineering and Environmental Impact, Beck, B.F. (ed.), Rotterdam, Netherlands: A.A. Balkema, 1984, pp. 283-292.
- Crawford, Nicholas. Toxic and explosive fumes rising from carbonate aquifers: a hazard for residents of sinkhole plains, Sinkholes: Their Geology, Engineering and Environmental Impact, Beck, B.F. (ed.), Rotterdam, Netherlands: A.A. Balkema, 1984, pp. 297-304.
- Crawford, Nicholas (with A.J. Whallon). "Hydrologic Hazards in Karst Terrain," U.S. Geological Survey Water Fact Sheet.
- Davis, James (with Wayne Hoffman). "The Role of the Academic Chairperson as a Catalyst in Departmental and Faculty Public Service Activity," Academic Chairpersons: Administrative Responsibilities, Volume 13, Part 2, pp. 587-594, 1984.
- Dilamarter, Ronald. A Local Example of Structural Control in the Kentucky Pennyroyal, Proceedings, Geography Section, Kentucky Academy of Science, pp. 48-56, 1984.
- Dilamarter, Ronald. "The Geologic Environment of a Small Sinking Stream," Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 125-134, 1984.
- Dilamarter, Ronald. "Structural Control in the Southwestern Pennyroyal Karst: A Local Example," Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 136-145, 1984.
- Hoffman, Wayne (with James Davis). "The Role of the Academic Chairperson as a Catalyst in Departmental and Faculty Public Service Activity," Academic Chairpersons: Administrative Responsibilities, Volume 13, Part 2, pp. 587-594, 1984.
- Kuehn, Kenneth. "Petroleum and Petroleum Refining," New Book of Knowledge - Encyclopedia, 1985.
- Seeger, Ronald. "Caves and Gravity Methods," Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 120-124, 1984.
- Seeger, Ronald (with Frank Asaro, Helen Michel, Walter Alvarez and Luiz Alvarez). "Iridium discovery at the Jephtha Knob Cryptexplosion Structure, Kentucky," Lunar and Planetary Science XVI, pp. 757-758, 1985.
- Trapasso, Michael. A Study of Local Weather Conditions: The Effects of the May 30, 1984 Eclipse, Weatherwise, Volume 37, No. 5, pp. 253-256, 1984.

Trapasso, Michael. Seasonal Relationships Between Clouds and Rain, Proceedings, Geography Section, Kentucky Academy of Science 1983 Meeting, pp. 242-248, 1984.

Trapasso, Michael. The Hydrologic History of a Cave Determined by Erosional and Depositional Features, Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 96-103, 1984.

Trapasso, Michael. Slope and Sinkhole Morphology, Central Kentucky Cave Survey Bulletin, No. 1, Center for Cave and Karst Studies, Western Kentucky University, pp. 160-167, 1984.

PAPERS PRESENTED

- Ahsan, Reza, "Afghanistan: The Geographic Nature of Russian Expansion," Association of Muslim Social Scientists, Lafayette, Indiana, 1984.
- Ahsan, Reza, "Cultural Regions of Afghanistan," Kentucky Academy of Science, Frankfort, Kentucky, 1984.
- Bingham, James, "Spatial Variations in Housing Values in Bowling Green, Kentucky: A Neighborhood Analysis," (with Wayne Hoffman), Kentucky Academy of Science, Frankfort, Kentucky, 1984.
- Crawford, Nicholas, "Sinkhole Flooding, Sinkhole Collapse and Groundwater Pollution in Karst Regions," Tennessee Environmental Health Association Annual Meeting, Nashville, Tennessee, 1984.
- Crawford, Nicholas, "Water Quality Problems Associated with Turbulent Flow in Shallow Karstified Carbonate Aquifers," U.S. Environmental Protection Agency Seminar on the Protection of Public Water Supplies from Groundwater Contamination, Athens, Georgia, 1984.
- Crawford, Nicholas, "Sinkhole Flooding Associated with Urban Development upon Karst Terrain: Bowling Green, Kentucky," First Multidisciplinary Conference on Sinkholes, Orlando, Florida, 1984.
- Crawford, Nicholas, "Toxic and Explosive Fumes Rising from Carbonate Aquifers: A Hazard for Residents of Sinkhole Plains," First Multidisciplinary Conference on Sinkholes, Orlando, Florida, 1984.
- Crawford, Nicholas, "Health Advisory Issued for Bowling Green, Kentucky due to Hazardous Fumes Rising from Caves," National Speleological Society, Frankfort, Kentucky, 1985.
- Crawford, Nicholas, "Sinkhole Collapses Induced by Changes in Surface Drainage," (with James Webster), National Speleological Society, Frankfort, Kentucky, 1985.
- Crawford, Nicholas, "Storm Water Drainage Wells in Kentucky and Tennessee: A Storm Water Management Tool for Urbanized Areas on Karst Terrains," (with Christopher Groves), National Speleological Society, Frankfort, Kentucky, 1985.
- Crawford, Nicholas, "The Karst Hydrogeology of Cane Creek, Tennessee," (with John Hoffelt), National Speleological Society, Frankfort, Kentucky, 1985.
- Davis, James, "Telford: British New Town at the Crossroads," Association of American Geographers, Detroit, Michigan, 1985.
- Dilamarter, Ronald, "Geomorphic Variations in the Dripping Springs (Chester) Escarpment," Kentucky Academy of Science, Frankfort, Kentucky, 1984.

- Dilamarter, Ronald, "Oil Well Problems in a Karst Region," Southeast Division of Association of American Geographers, Birmingham, Alabama, 1984.
- Hoffman, Wayne, "Spatial Variations in Housing Values in Bowling Green, Kentucky: A Neighborhood Analysis," (with James Bingham), Kentucky Academy of Science, Frankfort, Kentucky, 1984.
- Kuehn, Kenneth, "Petrologic Evolution of Coals in the Raccoon Mountain Coal Basin," Society for Organic Petrology, Washington, D.C., 1984.
- Moore, Conrad, "Periodic Impoverishment of the Great Plains Grassland, 1805-76," Association for Arid Lands Studies Annual Meeting, Fort Worth, Texas, 1985.
- Seeger, Ronald, "Iridium Discovery at the Jephtha Knob Cryptoexplosion Structure, Kentucky," NASA, Houston, Texas, 1985.
- Trapasso, Michael, "Local Weather Fluctuations During the Annular Solar Eclipse, May 30, 1984," Kentucky Academy of Science, Frankfort, Kentucky, 1984.
- Trapasso, Michael, "A Closer Look at the TV Weather Forecaster," Association of American Geographers National Meeting, Detroit, Michigan, 1985.
- Trapasso, Michael, "Meteorological Data Availability in Ecuador, South America," Kentucky-Ecuador Partners, Frankfort, Kentucky, 1984.

PROFESSIONAL WORKSHOPS ATTENDED

- Ahsan, Reza. U.S. Census Workshop, Western Kentucky University, 1984.
- Ahsan, Reza. Improving Your Lecturing, Western Kentucky University, 1985.
- Ahsan, Reza. Learning Principles to Enhance Teaching and Learning, Western Kentucky University, 1985.
- Ahsan, Reza. A Research and Development Conference, Western Kentucky University, 1985.
- Bingham, James. Faculty Development Workshop, Western Kentucky University, 1984.
- Bingham, James. Co-op Education - Part of Title VIII Comprehensive Grant, Faculty Development Workshop, Western Kentucky University, 1984.
- Crawford, Nicholas. Protection of Public Water Supplies from Groundwater Contamination, U.S. Environmental Protection Agency, Atlanta, Georgia, 1984.
- Hoffman, Wayne. U.S. Census Workshop-Geographic Concepts-Bureau of Census-State Data Center, Western Kentucky University, 1984.
- Hoffman, Wayne. U.S. Census Workshop, 1990 Census, Bureau of Census, Louisville, Kentucky, 1984.
- Hoffman, Wayne. Statistical Package for the Social Sciences and Music, Western Kentucky University, 1985.
- Kuehn, Kenneth. Science Grant Day, Western Kentucky University, 1985.
- Kuehn, Kenneth. Teaching Improvement, Western Kentucky University, 1985.
- Lowry, Mark. Kentucky Tomorrow Conference, Lexington, Kentucky, 1985.
- Lowry, Mark. Federal Emergency Management Briefing and State Area Exercise, Ft. Knox, Kentucky, 1985.
- Petersen, Albert. Fostering International Understanding Through World Geography, Wingspread Conference Center, Racine, Wisconsin, 1984.
- Trapasso, Michael. Effective Teaching, Western Kentucky University, 1985.
- Trapasso, Michael. Effective Exam Writing, Western Kentucky University, 1985.

POSITIONS HELD IN PROFESSIONAL ORGANIZATIONS

Ahsan, Reza

State Counselor

Midsouth Division, American Society of Photogrammetry

Conner, Glen

Secretary, 1984

Chairman, 1985

Kentucky Academy of Science Geography Section

Davis, James

Historian

Southeastern Division of the Association of American Geographers

President-Elect

Western Kentucky University Sigma Xi Club

President

Western Kentucky University Chapter of Phi Kappa Pi Scholastic Honor Society

Dilamarter, Ronald

Editor, Geo**2

National Speleological Society

Program Committee

Southeast Division, Association of American Geographers

Fields, Noland

Liaison Officer

Geological Society of America

Hegen, Edmund

Delegate AAAS

Kentucky Academy of Science

Hoffman, Wayne

Secretary

Southeast Division of the Association of American Geographers

Membership Committee

Southeast Division of the Association of American Geographers

Environmental Policy Committee

National Association of Regional Councils

REPRESENTATION AT PROFESSIONAL MEETINGS

*participated in meeting as chairman of a session, paper presentation, or in some other professional manner.

Association of Muslim Social Scientists, Lafayette, Indiana, July, 1984.
Ahsan*.

American Association of State Climatologists, Chicago, Illinois,
August, 1984. Conner*.

First Multidisciplinary Conference on Sinkholes, Orlando, Florida,
October, 1984. Crawford*.

Midsouth American Society of Photogrammetry, Chattanooga, Tennessee,
October, 1984. Ahsan.

Alabama Geological Society, Birmingham, Alabama, October, 1984.
Seeger*.

South Atlantic Modern Languages Association, Atlanta, Georgia,
November, 1984. Davis.

Kentucky Academy of Science, Frankfort, Kentucky, November, 1984.
Ahsan*, Bingham*, Conner*, Dilamarter*, Hoffman*, Trapasso*.

SE Division of Association of American Geographers, Birmingham,
Alabama, November, 1984. Ahsan, Bingham, Davis*, Dilamarter*,
Hoffman, Lowry, Trapasso*.

Society for Organic Petrology, Washington, D.C., November, 1984.
Kuehn*.

NASA, Houston, Texas, March, 1985. Seeger*.

National Meeting of the Association of American Geographers,
Detroit, Michigan, 1985. Davis*, Hoffman*, Petersen*,
Trapasso*.

Association for Arid Lands Studies, Fort Worth, Texas, April, 1985.
Moore*.

Kentucky Planning Association, Bowling Green, Kentucky, May, 1985.
Hoffman.

National Speleological Society Annual Meeting, Frankfort, Kentucky,
June, 1985. Crawford*, Dilamarter.

National Association of Regional Councils, Pittsburgh, Pennsylvania,
June, 1985. Hoffman.

ACCREDITATION, SPECIAL CONSULTANT, OR TECHNICAL ASSISTANCE

- | | |
|--------------------|--|
| Ahsan, Reza | - Ph.D. Examiner, Aligarh University |
| Bingham, James | - Population Projection Assistance to Lincoln Trail
ADD and Green River ADD
- Rural Transportation Review for KIPDA |
| Crawford, Nicholas | - Locational Evaluation Methodology Applied to a
Storage Facility Containing Hazardous Chemicals
in Buried Tanks in Karst Terrain, U.S. Geological
Survey
- Karst Hazards: Sinkhole Flooding, Sinkhole
Collapse, and Groundwater Contamination,
U.S. Geological Survey
- Dye traces of potential contaminant sources
contributing to hazardous fumes in the caves
under Bowling Green, Kentucky, Kentucky
Division of Water
- Consultation in a legal case involving a
gasoline leak from a buried tank into a cave
system resulting in the contamination of a
spring near Gravel Switch in Marion County,
Kentucky, Attorney Bill Calvin
- Consultant on hazardous fumes in caves under
Bowling Green, Kentucky, U.S. Environmental
Protection Agency Emergency Response Team |
| Lowry, Mark | - Liaison between Commonwealth of Kentucky and
U.S. Army as concerns FEMA |
| Petersen, Albert | - Special Advisor, Attorney General of Kentucky,
Ohio River Boundary Dispute
- Peabody Coal Company, Landuse Dispute
- Consultant on two federally funded highway
projects, Johnson, Depp and Quisenberry |
| Trapasso, Michael | - Monitoring Precipitation and the Incidence
of Flooding in Bowling Green, Florence and
Hutcheson Engineering Firm
- Planning the Establishment of two Weather
Stations in Ecuador, Kentucky-Ecuador
Partners of the Americas
- Court Case Involving Flooded Property
Huddleston Bros. and Duncan
- Meteorological Consultation, Richard
A. Dononing and Associates
- Meteorological Consultation, James A. Tabb
Construction Company
- Meteorological Consultation, Investigating
and Consulting Engineers and Associates |

GRANTS AND FELLOWSHIPS

Ahsan, Reza	- Video Image Processing System President's Development Fund \$ 2,000
Conner, Glen	- Computer Equipment Grant President's Development Fund \$ 1,300
Crawford, Nicholas	- Toxic and Explosive Fumes City of Bowling Green \$ 109,000 - Monitoring of Lost River Groundwater Basin U.S. Geological Survey \$ 10,200 - Toxic Fumes EPA and Haztech (variable) - Toxic and Explosive Fumes Rising from Carbonate Aquifers: A Hazard for Residents of Sinkhole Plains Faculty Research Grant \$ 1,500
Fields, Noland	- Summer Faculty Research Fellowship \$ 1,500
Lowry, Mark	- Faculty Research Grant Partners of the Americas \$ 1,000
Seeger, Ronald	- Faculty Development Grant \$ 300
Trapasso, Michael	- Faculty Development Grant \$ 130 - Air Quality Study Shell and Associates \$ 1,600 - National Association for Partners of the Americas \$ 3,000

SERVICE ON OFF-CAMPUS ADVISORY COMMITTEES

- Conner, Glen
- Alternate Energy Advisory Committee, Kentucky Energy Cabinet.
 - Project Review Committee, Kentucky Energy Cabinet.
 - Drought Monitoring Committee, Kentucky Department of Natural Resources.
- Crawford, Nicholas
- Citizens Advisory Committee, Ohio River Basin Commission.
 - Scientific Committee, Cave Research Foundation.
 - Hydrologist, Kentucky Cave and Rock Rescue Team.
 - Kentucky Citizens Water Task Force.
 - Chairman, Bowling Green Hazardous Fumes Emergency Response Committee.
- Hoffman, Wayne
- Board of Directors, Barren River Area Development District (BRADD).
 - Kentucky Representative, Citizens Advisory Committee, Ohio River Basin Committee.
 - Chairman, Natural Resource and Environmental Problems Committee, BRADD.
 - Environmental Protection Committee, National Association of Regional Councils.
- Petersen, Albert
- Kentucky Rural Preservation Council, Kentucky Heritage Council.

OTHER PROFESSIONAL PUBLIC SERVICE AND CREATIVE CONTRIBUTIONS

- | | |
|--------------------|--|
| Ahsan, S. Reza | <ul style="list-style-type: none"> - India and Mrs. Ghandi - WKYU-FM - Ethiopia and Food Scarcity - WKYU-FM - Presentation at an area high school |
| Conner, D. Glen | <ul style="list-style-type: none"> - Several tours of Climate Center and Weather Station - As State Climatologist provided data to over 600 clients - Judge, Science Fair - Presentation to Bowling Green Rotary Club |
| Crawford, Nicholas | <ul style="list-style-type: none"> - Free consultation to a host of private citizens, elected officials and government agencies - Numerous television, radio and newspaper interviews concerning groundwater contamination and fume problems - Presentations to Kiwanis Club, Audubon Society, Elderhostel, Society of Professional Engineering, Green River Speleological Society, and others. - Assisted KET in production of a movie called "Caving" - Assisted WSM TV on a series on caves - Guest on Community Speaks |
| Fields, Noland | <ul style="list-style-type: none"> - presentation to Rotary Club - presentation to area high school - assisted Kentucky Museum with fossil collection |
| Hegen, Edmund | <ul style="list-style-type: none"> - Visit to area high school - International Days - Judge, Kentucky Junior Academy of Science |
| Kuehn, Kenneth | <ul style="list-style-type: none"> - Presentation to local school (2) - Arranged for Dr. Rex Pilger of LSU to visit department - Assistance to Kentucky Museum - Judge, Science Fair |
| Lowry, Mark | <ul style="list-style-type: none"> - Judge, Science Fair - Organized emergency management workshop held in Frankfort - Sister Cities Program |
| Moore, Conrad | <ul style="list-style-type: none"> - International Days - Judge, Kentucky Junior Academy of Science |
| Petersen, Albert | <ul style="list-style-type: none"> - Bowling Green High School Faculty Exchange |
| Seeger, Ronald | <ul style="list-style-type: none"> - New Madrid Fault and Earthquakes - WKYU-FM |

- Trapasso, Michael
- Numerous tours of the Weather Station
 - Approximately 30 newspaper interviews
 - Several television and radio interviews
 - Presentation to Womens Club and Bowling Green Rotary Club
 - Weather Forecast WKYU-FM daily program
 - International Days
 - Severe Weather Observer

WORKSHOPS, SEMINARS AND FIELD TRIPS CONDUCTED

- | | |
|--------------------|---|
| Ahsan, Reza | - Presentation to Latin American Studies Class |
| Crawford, Nicholas | - "Hydrogeologic Problems of Karst Regions,"
Geology Department, University of Louisville |
| | - "Environmental Problems Associated with Urban
Development upon Karst Terrain," Geography
Department, University of Louisville |
| | - Presented a workshop at Tennessee Environmental
Health Association Meeting, Nashville |
| | - Led Geology Club field trip |
| Kuehn, Kenneth | - Presentation to Coal Science Group |
| | - Led several Geology Club field trips |
| | - Presentation to Geology Club |
| Moore, Conrad | - Presentation to the Department of Geography and
Geology |
| Seeger, Ronald | - Presentation to the Department of Geography and
Geology |
| Trapasso, Michael | - Presentation on Mayan Civilization, W.K.U. |